UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

REGION 4

Science and Ecosystem Support Division
980 College Station Road
Athens, Georgia 30605-2720

September 14, 2010

Mr. F. Allen Barnes, Director
Georgia Department of Natural Resources
Georgia Environmental Protection Division
2 Martin Luther King, Jr. Drive SE
Atlanta, Georgia 30334

Dear Mr. Barnes:

Thank you for the Quality Management Plan for the Georgia Department of Natural Resources and Environmental Protection Division (GAEPD). This Plan was submitted in response to the terns and conditions placed by Region 4 on all grants awarded to GAEPD. Additional grant requirements are specified in 40 CFR Part 31.45 and EPA CIO 2105.0 (formerly Executive Order 5360.1, Change 1), for environmental data.

Enclosed is your signed QMP to indicate Region 4 approval on September 14, 2010. Please contact me at (706) 355-8738 if you have any questions.

Sincerely,

Danny France
Quality Assurance Manager

Enclosures (2)

QAS COPY

GEORGIA ENVIRONMENTAL PROTECTION DIVISION

Quality Management Plan

July 2010

Georgia Department of Natural Resources
Environmental Protection Division
2 Martin Luther King Jr. Drive SE
Atlanta, GA 30334

Georgia Environmental Protection Division
Quality Management Plan

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Approvals and Concurrence

Approvals

This is to certify that we have reviewed this document and approve of its contents.

F. Allen Barnes 9-1-10

Signature Date

F. Allen Barnes

Director, Georgia Environmental Protection Division

9/1/10

Signature Date

Jim Ussery

Assistant Director, Georgia Environmental Protection Division

Doralyn S. Kirkland 9-1-2010

Signature Date

Doralyn Kirkland

Quality Assurance Manager, Georgia Environmental Protection Division

9/14/10

Signature Date

Danny France

Quality Assurance Manager, U.S. EPA Region 4

Concurrence

This is to certify that we have conducted an internal review of this Quality Management Plan and we concur with its contents

Signature 9/1/10
Date

Jim Ussery
Assistant Director, Georgia Environmental Protection Division

Signature 9/8/10
Date

James A. Capp
Branch Chief, Air Protection Branch

Signature 9/7/10
Date

Mark O. Smith
Branch Chief, Land Protection Branch

Signature 9/7/10
Date

James A. Sommerville
Branch Chief, Program Coordination Branch

Signature 9/3/10
Date

Linda MacGregor
Branch Chief, Watershed Protection Branch

Introduction

This Quality Management Plan has been developed to provide guidance to the management and staff of the Georgia Environmental Protection Division (EPD) in the development, implementation, and assessment of quality system procedures. These procedures require that environmental data collected are of known quality and that environmental technologies are designed, constructed, and operated in a manner to ensure the prevention of pollution or the removal of pollutants from the environment. Included in the procedures are methods used by EPD management to assess the effectiveness of the Quality Management Plan. This plan was developed utilizing USEPA QA/R-2, *EPA Requirements for Quality Management Plans* and meets the requirements of ANSI/ASQC E4-1994, *Specifications and Guidelines for Quality Systems for Environmental Data Collection and Environmental Technology Programs.*

Decisions made by the technical staff and management of the Georgia EPD directly impact the lives of all Georgia citizens. It is essential that decisions made on environmental data and technology are of the highest possible quality.

Considerable funds are expended each year by EPD to collect and administer environmental data and to ensure environmental technology performs in the control and removal of pollution from Georgia's environment as approved by the EPD. In response to rules and regulations administered by the EPD, our regulated community has invested in data collection and technology improvements to meet Georgia regulatory requirements and improve our environment. The goal of EPD management, through this Quality Management Plan, is to have sufficient quality system elements in place to ensure that all technical decisions are based on scientifically sound data and technology.

Section 1.0 - Management and Organization

1.1 EPD Mission Statement

The Environmental Protection Division (EPD) protects and restores Georgia's environment. We take the lead in ensuring clean air, water and land. With our partners, we pursue a sustainable environment that provides a foundation for a vibrant economy and healthy communities.

1.2 Policy: The Importance of Quality

Effective environmental policy and management requires the use of comprehensive scientific and technical information to support clear, practical, well-documented, and timely decisions. This is one of EPD's stated guiding principles.

Decisions made by the technical staff and management of the Georgia EPD directly impact the lives of all Georgia citizens. It is essential that decisions be made on environmental data and technology that are of the highest possible quality.

Adherence to a quality system assures that environmental data and technology is developed on a scientifically sound basis and is thus suitable for the decision-making process of protection of the environment and management of the EPD mission. The Quality Management Plan is the centerpiece of EPD's quality system and supports EPD's Mission.

1.3 General Objectives and Goals of the Quality System

EPD Branches shall provide reasonable assurance that environmental data generated and prepared is:

- scientifically valid
- of adequate statistical quantity
- of known precision and accuracy
- of adequate completeness
- representative
- comparable
- where required, legally defensible.

Environmental technologies and system components shall be designed, constructed, operated and assessed to ensure they are preventing pollution or removing pollutants from the environment.

1.4 Policy for Resource Allocation

Each year, EPD will expend and allocate resources necessary for the collection and administration of environmental data and to ensure environmental technology performs as approved by the EPD. In response to rules and regulations administered by the EPD, our regulated community has invested and will invest in data collection and technology improvements to meet Georgia regulatory requirements and improve our environment.

As part of the budgeting process, estimates of state appropriated, federal grant, and fee generated funds are determined along with programmatic uses of those funds. Within major programmatic areas, funds are utilized for (1) technical training, (2) quality assurance activities, and (3) personnel on a continuation basis. For air quality, water quality, hazardous waste and laboratory programs, funds are allocated in part to support quality assurance activities.

1.5 Organizational Commitment and Delegation of Responsibility

The management and staff of EPD are committed to producing environmental data and technology consistent with the guidelines presented in the Quality Management Plan.

The following Division personnel constitute the administration, organization and management of the Quality Management Plan:

1. Division Director and Assistant Director
2. Branch Chiefs
3. Program Managers
4. Technical Staff
5. Quality Assurance/Quality Control Coordinators
6. Division Quality Assurance Manager

Individual responsibilities for administration of the Quality Management Plan are as follows:

Division Director and Assistant Director

- Overall responsibility for implementation of plan.
- Ensures Branch Chiefs administer plan elements.
- Ensures procedures are in place to adequately measure conformity with plan guidelines for each type of project or activity.

Branch Chiefs

- Responsible for implementation of the plan within their Branch. The Branch Chief may delegate assignments of data quality objectives to the appropriate organizational level. However, responsibility for administration of the Branch quality system remains with the Chief.
- Ensures that the predefined plan results and objectives are achieved.
- Recommends plan revisions to the Quality Assurance Manager.
- Reports directly to the Assistant Director on matters of noncompliance with plan guidelines.

Program Managers

- Performs plan-related activities as delegated by the Branch Chief.

Technical Staff

- Performs plan-related activities as delegated by the Program Manager.

Quality Assurance/Quality Control Staff

- Develops plan-related activities as delegated by the Program Manager.

- Oversees conformance of data collection, analytical results, and contractor activities with requirements in the Division-wide quality management plan, branch quality plan and any project-specific quality assurance plans.

Responsibilities and Authority of the Quality Assurance Manager

- Reports directly to the Assistant Director on matters concerning adherence to the plan guidelines and has no programmatic data gathering, producing or reviewing responsibilities that would lead to a possible conflict with the role of a Quality Assurance Manager.
- Delegates internal assessments of individual Branch compliance with the plan.
- Conducts evaluations and makes recommendations to the Assistant Director on Quality Management Plan issues.
- Reviews contracts, planning documents, data collection and reporting as needed for compliance with quality management plans and has the ability to intercede if the proposed contract does not meet requirements.
- Coordinates quality assurance activities throughout the Division including, providing information regarding the quality management plan to staff and managers, providing guidance for proper implementation of quality system activities, and providing a forum for surfacing and resolving any disputes arising from any quality system actions amongst the Division's branches.

1.6 Effective Communication

Branch Chiefs will use Plan guidelines to establish quality system components sufficient to ensure that mission and quality policy requirements are met for all projects and activities. Branch Chiefs will require use of the Quality Management Plan guidelines throughout all staff levels in the performance of project related work activities. The Branch Chiefs will report to the Division Quality Assurance Manager and Assistant Director on the specific tools utilized in their Branch to ensure quality.

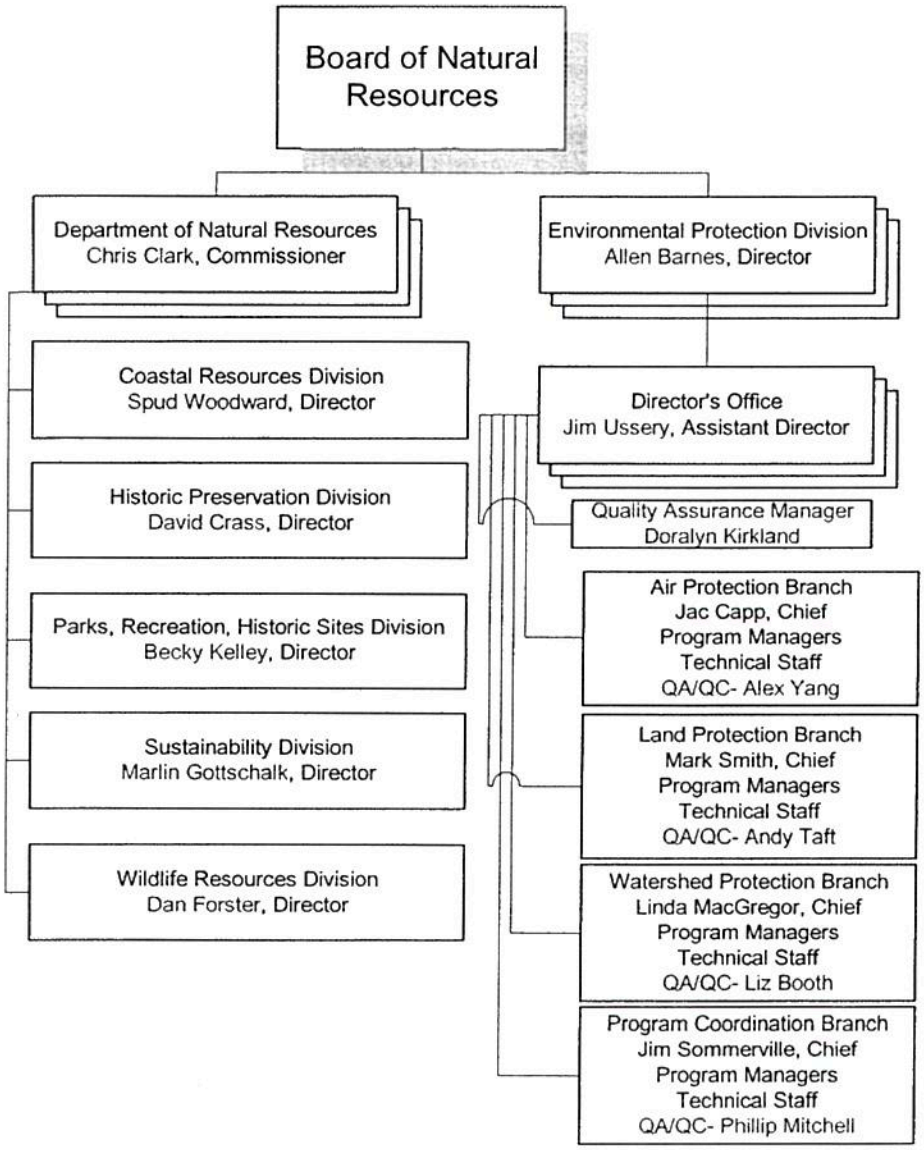
On-going coordination regarding quality system activities are conducted through communications amongst the Division Quality Assurance Manager and Branch Quality Assurance/Quality Control Coordinators. Should interpretation of quality system requirements or disputes of individual branch quality system plans arise, special meetings may be held with the Division Quality Assurance Manager, Branch QA/QC Coordinator, and appropriate Program Manager(s) and staff.

Additional training will be available at the discretion of the Branch Chiefs for new employees and as refresher training for existing technical staff. A copy of the Division Quality Management Plan will be made available to all staff members.

A continued emphasis in the use of the Quality Management Plan guidelines will be included in annual EPD work plans and will include continued implementation and improvements of the Quality Management Plan process.

1.7 Quality System Organizational Chart

The following functional organization chart depicts the reporting relationships in EPD's Quality Management Plan as of the middle of calendar year 2010.



1.8 Branch Environmental Responsibilities

The individual branches within EPD have developed quality systems that are in compliance with the guidelines of the EPD Quality Management Plan. Branches are required by the Assistant Director to have sufficient quality system elements in place to ensure consonance of projects and other work with the EPD Quality Policy. Listed below are the individual EPD branches and their responsibilities to the EPD Mission Statement.

Air Protection Branch is responsible for protecting Georgia's air quality through the regulation of emissions from industrial and mobile sources. This Branch also monitors

levels of air pollutants throughout the State. The Branch administers air pollution control programs through:

a. The U.S. Clean Air Act (42 USC 7401 et seq.) and
b. The Georgia Air Quality Act, Part 1 of Chapter 9 of Title 12 of the Official Code of Georgia Annotated (abbreviated as OCGA Section 12-9-1, et seq.).
c. The Georgia Motor Vehicle Emissions Inspection and Maintenance Act (OCGA Section 12-9-40 et seq.).

Land Protection Branch is responsible for protecting Georgia's land through the regulation of solid waste disposal and treatment, scrap tire cleanups, lead and asbestos abatement, underground storage tank registration and remediation, and surface mining permitting and reclamation. The Land Protection Branch also regulates facilities that treat, store or dispose of hazardous wastes and state Superfund. The Land Protection Branch administers land protection programs through:

a. Section 3006 of the Resource Conservation and Recovery Act of 1976 as amended (Public Laws 94-580, 96-482, 98-616).
b. The Georgia Comprehensive Solid Waste Management Act, (OCGA Sections 12-8-20, 12-8-30, 12-8-40, et seq.).
c. Both the Federal (40 CFR, Parts 280-281) and the Georgia Underground Storage Act (OCGA Section 12-13-1, et seq.).
d. The Georgia Lead Poisoning Prevention Act of 1994 (OCGA Section 31-41-1, et seq.).
e. The Georgia Asbestos Safety Act, (OCGA Section 12-12-1 et seq.).
f. The Georgia Surface Mining Act of 1968 (OCGA Section 12-4-70 et seq.).
g. Section 3006 of the Resource Conservation and Recovery Act of 1976 as amended (Public Laws 94-580, 96-482, 98-616).
h. The Georgia Hazardous Waste Management Act (OCGA Sections 12-8-60, 12-8-90 et seq.)
i. The Hazardous Site Reuse and Redevelopment Act (OCGA Section 12-8-200, et seq.).

Watershed Protection Branch is responsible for protecting Georgia's surface waters. It regulates municipal and industrial wastewater discharges, non-point source pollution, storm water discharges, and erosion and sedimentation This Branch is also responsible for monitoring and modeling of Georgia's waterways. The Watershed Protection Branch also regulates the use of Georgia's surface and ground water resources for drinking water, impoundment, agriculture irrigation, and other non-agricultural uses. The Watershed Protection Branch administers watershed protection programs through:

1) The U.S. Clean Water Act (33 U.S.C. § 1251 et seq.)
2) The U. S. Save Drinking Water Act (42 U.S.C. § 300f et seq.)
3) The Georgia Water Quality Control Act (OCGA 12-5-20 et seq.)
4) The Georgia Safe Drinking Water Act (OCGA 12-5-170 et seq.)

5) The Ground-Water Use Act (OCGA 12-5-90 et seq.)
6) The Georgia Water Supply Act (OCGA 12-5-470) et seq.)
7) The Georgia Well Water Standards Act (OCGA 12-5-120 et seq.)
8) The Georgia Erosion and Sedimentation Act (OCGA 12-7-1) et seq.)
9) The Georgia Safe Dams Act (OCGA 12-5-370) et seq.)
10) The Georgia Oil and Gas and Deep Drilling Act (OCGA12-4-40 et seq.)
11) The Comprehensive State-wide Water Management Planning Act (OCGA 12-5-520 et seq.)
12) The Georgia Flint River Drought Protection Act (OCGA 12-5-540 et seq.)

Program Coordination Branch functions are Division-wide in scope and include:

a. district offices
b. emergency response
c. laboratory operations
d. radiological licensing
e. radiological surveillance, and
f. toxicology.

Environmental management district offices are located throughout Georgia. These districts are responsible for regulatory oversight in their respective geographic area and function under the same federal and state regulations as other parts of the Division.

The environmental laboratory provides analytical support to the individual branches in support of their missions. The Branch regulates environmental laboratories under the Georgia Commercial Analytical Laboratories Act (OCGA 12-2-9, et seq.).

The Environmental Radiation and Radioactive Materials Program also operate under this Branch. Activities of the Radiation and Radioactive Materials Program are directed by the Georgia Radiation Control Act, (OCGA Section 31-13-1, et seq.).

The emergency response program responds during the emergency phase of a release or spill.

2.0 Quality System Description

2.1 Quality System Overview

The comprehensive quality system in place at EPD - of which the centerpiece, the Georgia EPD Quality Management Plan (EPD-QMP) describes the quality system and its various components - ensures that EPD's quality policies are met in the collection of environmental data and in technology activities.

The EPD-QMP is intended to include EPD environmental data collection and reporting programs that involve research and development, monitoring, laboratory operations on environmental samples, and modeling activities, regardless of the source of funding. The Director, the Assistant Director, Quality Assurance Manager, Branch Chiefs, Program Managers, and the QA/QC Coordinators have the responsibility for implementation of the Plan and its various elements. The Plan is reviewed annually, and revised if necessary, but at least every five years.

The quality system also includes 1) standard operating procedures for routine and / or repetitive tasks; 2) systematic planning of projects, including the development of quality assurance protocols; and 3) management assessments.

The Assistant Director requires each Branch Chief to identify sufficient quality system controls for each project or work activity. Sufficient controls will vary from project to project or by program, depending on the final use of the data or technology and the decision-making requirements. In turn, each Branch Chief delegates the responsibility of identifying sufficient quality system controls to the appropriate Program Manager and QA/QC Coordinator. The Program Manager, and if needed, the QA/QC Coordinator develops and implements quality system components into the various work processes. The Program Manager (or his designee) maintains any program-specific quality assurance plans and project-specific quality assurance project plans.

Program-related Quality Assurance Plans and project-related Quality Assurance Project Plans are reviewed through a two-step process: (1) the Program Manager reviews the QAP or QAPP, in consultation with the QA/QC Coordinator, and (2) the Branch Chief reviews significant changes or deviations in any Program QAP or Project QAPP. For Program-related Quality Assurance Plans that have been significantly changed, the Program QAP will be reissued and transmitted to those responsible for its implementation. Should a QAPP need significant revision, the Program Manager is responsible for its reissue and distribution to affected staff.

2.2 Standard Operating Procedures: Standard Operating Procedures (SOPs) are written documents that describe the detailed procedures for a method of operation, activity, or analysis so that the procedure can be consistently reproduced over a long time period. SOPs are generally developed for activities that are conducted on a repetitive basis, often by multiple staff members performing the same task (i.e., routine data collection activities,

monitoring, modeling, laboratory and field measurement activities). SOPs can be developed internally for specialized tasks or can be adopted from approved procedures, developed by state and federal agencies or standards development organizations.

2.3 Systematic Planning of Projects

Environmental investigations requiring data collection are designed using a systematic planning process, which prescribes a common sense and graded approach to ensure sufficient quality system components. Documented guidance procedures are employed to produce a final product that meets predefined standards / objectives for quality.

1. A project manager or compliance officer will be identified by the Branch Chief or Program Manager for all planning and project activities, including the execution of quality assurance protocols.
    i) The project manager will oversee the planning process which includes the identification and description of:
        (1) project objectives;
        (2) scope of work, including project deliverables;
        (3) necessary resources, including:
            (a) human,
            (b) financial (including the development of the project budget),
            (c) those resources needed for the execution of the quality assurance protocols;
        (4) schedule
            (a) deadlines and milestones;
        (5) quality assurance protocols, including:
            (a) data quality objectives;
            (b) a list of all required documentation;
            (c) development of a master document log that provides a comprehensive and current project documentation inventory.

As an environmental investigation project is identified, the project personnel must identify the overall quality of data and sampling activity required for project decisions through systematic planning.

2.3.1 Quality Assurance Program or Project Plans

Quality Assurance Program or Project Plans are formal documents that describe in comprehensive detail the required quality control, quality assurance, and related technical activities that must be carried out for a specific project so that project deliverables are met and the data that result from the project are of sufficient quality to meet the project objectives. The USEPA provides guidelines for the development of QAPPs on its web site. (USEPA QA /R-5, EPA Requirements for Quality Assurance Project Plans, USEPA Office of Research and Development, March 2001, EPA/240/B-01/003 <http:www.epa.gov/quality/qa_docs.html>) These guidelines must be followed for USEPA and EPD's funded projects. Project managers for projects funded by other external sponsors will use QAPP guidelines approved by the sponsor and associated elements

contained in the EPD QMP. Project managers for internally funded programs will develop QAPPs following guidelines provided in the EPD QMP.

Data and technology validation criteria are specified in the project quality assurance project plan.

All project activities are identified and documented in the project's quality assurance project plan. Activities associated with environmental investigations include data quality objectives, data quality, sample collection and laboratory analytical procedures, final laboratory deliverables and data validation. A copy of the project's quality assurance project plan should be provided to the EPD Laboratory when data collection involves sample analysis performed at the EPD Laboratory.

SOPs are included as part of or are referenced in the Quality Assurance Program or Project Plans. The source for all SOPs must be clearly defined in the QAPP. Guidelines for the development of SOPs are available on the USEPA web site (Section 1.2.5).

2.3.2 Data Quality Objective Establishment

Predefined data quality objectives for precision, accuracy and completeness are a critical part of the planning activity for any data collection activity and are based largely on the quality of data required to support the decision process. The project manager and field support personnel must work closely with the analytical laboratory to define the level of data quality and laboratory deliverables. Laboratory deliverables can include several different levels of report detail depending on the decision support required by project personnel. Standard laboratory data quality objectives for each analytical method are presented in the EPD Laboratory Quality Assurance Manual. The project quality assurance project plan documents the analytical method required and includes by reference or the actual Laboratory data quality objective tables. Detailed guidance for developing data quality objectives is provided in the EPA document *Guidance for the Data Quality Objectives Process*, EPA QA/G-4 and *Guidance for Data Quality Assessment-Practical Methods for Data Analysis*, EPA QA/G-9.

2.3.3 Assessment of Results / Data Validation

Data quality assessments are evaluations of results to determine their validity and appropriateness for their intended use. Routine data quality assessments need to be incorporated into the project design, with clear indication of the staff responsible for conducting the assessments. The assessments are to be conducted on a predetermined frequency and a written record maintained that documents the results of the data review. Any deviations from the data quality objectives that are discovered during the assessments will be reported to the project manager for corrective action. For externally funded projects, sponsors may require that the sponsoring agency or a qualified third party conduct data quality assessments.

The project manager ensures that final data acceptance or rejection is based on the expressed requirements of the quality assurance project plan.

Based on defined data quality objectives, environmental data or technology are accepted or rejected. Individual EPD Branches maintain data validation procedures for the various types of environmental data collection and work activities they perform. Included in the data validation procedure is guidance for the validator in the process. Acceptance or rejection of data is based on the quality system criteria being met during the collection or analytical process that created the data and/or the final use of the data in the decision making process.

2.4 Contractor Requirements

Most activities associated with environmental data collection or technology review projects are conducted by EPD personnel. In the few activities in which outside contractor assistance is required, the contractor employees are required to meet project specific quality related activities as specified in the project's quality assurance project plan and contract.

2.5 Management Assessments

An important component of any quality system is management assessment of the system's effectiveness. Periodic assessments ensure the continual improvement of the quality system and initiates correction of system deficiencies.

In general, management assessments are routine and ongoing. Reviews by senior management (Branch Chiefs, Quality Assurance Manager) monitor the effectiveness of the quality system. Depending on the branch and the project, progress reports, annual reports, and final reports are developed by staff for review by the program manager and the branch chief to determine if data quality objectives have been met. External assessments in the form of an outside review team may be requested at the discretion of the Branch Chief.

Periodic technical reviews, conducted during the course of a project, are documented assessments of technical verification for bias, precision, completeness, or representiveness. Technical reviews may be conducted by staff who are independent of the project team, but with equivalent experience and training in the project discipline. External individuals may also conduct reviews. Technical reviews should result in a written record of the review findings with a documented response from the project manager that addresses the reviewer's findings. The project manager is responsible for retaining records that document the review findings and responses.

In addition, this Quality Management Plan requires four specific types of quality system assessments and includes evaluations of measurement system performance in:

1) analytical operations,
2) data collection and technology review procedures,
3) data quality assessment procedures, and
4) management system procedures.

A brief overview of each system assessment is presented below.

2.5.1 Measurement System Audit (Analytical Operations)

The EPD Laboratory Quality Assurance Manager conducts internal measurement system audits. Performance assessments involve the analysis of Proficiency Testing samples four times each year. Additionally, the Laboratory Quality Assurance Manager performs individual method audits to ensure compliance with the laboratory quality assurance system and the current method procedure. Method deficiencies initiate a laboratory corrective action to resolve identified deficiencies. Audits of the laboratory are also conducted by US EPA Region 4 every two years to assess the laboratory's compliance with National Environmental Laboratory Program requirements. Project personnel may request external measurement system audits as needed to ensure the quality of analytical data collected in support of an EPD project.

2.5.2 Data Collection and Technology Review Audit

The Division Quality Assurance Manager under the authority of the Assistant Director conducts Data Collection and Technology Review Audits. Branches are audited to ensure compliance with the guidelines of the Quality Management Plan. Specific projects or work activities are identified. A complete assessment is scheduled with the Branch Chief. The audit includes qualitative assessments of the quality assurance project plans, personnel, project planning and documentation, data quality objective development, data collection, and senior management review of the project. Technology review audits are conducted in a similar fashion and will involve a review of the technology approval process.

2.5.3 Data Quality Audit

Data Quality Audits are conducted in coordination with the Data Collection and Technology Review Audit conducted by the Division Quality Assurance Manager on specific projects. Environmental data collected in support of the project's decision-making process are quantitatively evaluated for compliance with the project's defined data quality objectives.

2.5.4 Management Procedures Audit

Management Procedures Audits are conducted by the Division Quality Assurance Manager. This is an assessment of the Division's ability to ensure compliance with the guidelines of the Quality Management Plan. This audit is based largely on the findings of the three other types of audits performed throughout the evaluation period on Division projects and work activities. The final audit report is presented to the Assistant Director by the Division Quality Assurance Manager along with summary recommendations to correct deficiencies identified in previous audits.

In response to audit deficiencies Branch Chiefs will provide the Assistant Director and Division Quality Assurance Manager a written response. The response should clearly identify the corrective action initiated to correct deficiencies and the date by which management can expect the deficiency to be corrected.

3.0 Personnel Qualification and Training

3.1 Introduction / Minimum Qualifications

The Georgia State Personnel Administration maintains technical staff job descriptions and minimum levels of education and training and experience for positions within EPD. These job descriptions can found at the State Personnel Administration website: <http://www.gms.state.ga.us/>. EPD's Personnel Officer and EPD Program Managers review employment packages to verify credentials and technical qualifications of applicants. This process assures that candidates meet the appropriate qualifications for positions within the Division. There are no requirements for professional licensure, accreditation, or certification as part of the minimum qualifications for technical staff.

3.2 Technical Training and Documentation

Personnel rules, however, are only part of the process through which EPD ensures continued proficiency of its staff. EPD provides in-house training, and provides staff participation for external training, such as EPA-sponsored courses (e.g., Air Pollution Training Institute, Training Exchange Network, Drinking Water Academy, RCRA Management Workshops), and non-governmental sponsored courses (e.g., Georgia Water and Wastewater Institute, Georgia Landfill Operation Certification).

Various environmental programs within EPD have specific and tailored training requirements for their staff. Program managers in these programs are responsible for ensuring that staff receives the appropriate external training in conjunction with on-the-job and in-house training as an employee gains knowledge and experience. The effectiveness of the training is demonstrated through reviews of job performance by the supervisor and peers.

Branch Chiefs and their Program Managers are responsible for reviewing technical qualifications of employees and determining when and if additional professional development is needed. Programs within the Branches have implemented specific policies requiring initial demonstrations of proficiency and continuing demonstrations of technical ability. EPD personnel typically undergo training of various types, depending on their position and job responsibilities. These training actions include orientation for new employees, on-the-job training, in-house training, and participation in regional or national training programs involving state or federal agencies, non-profit organizations, or commercial training companies.

Documentation of training records is kept by the EPD employee and is recorded by their supervisor during the annual performance evaluation. Often Certificates of Completion serve as documentary evidence of training.

EPD's senior managers, through the budgeting process, provide the resources and guidance for technical training for EPD staff and managers. Program Managers, in turn, utilize and prioritize fiscal and temporal resources to provide staff with the appropriate technical training.

3.3 Reinforcement and Enhancement of Technical Training

Technical employees' performance is also evaluated on a periodic basis by supervisor and manager review of an employee's performance on work assignments. If inadequacies in performance are noted, the Program Manager and Branch Chief may recommend additional professional development. Conversely, to expand an employee's technical knowledge, skills and abilities, the Program Manager and Branch Chief may also recommend additional professional development. Annual evaluations are conducted for all technical employees of the EPD. The Branch Chief and Assistant Director are notified of any circumstance in which an employee is not meeting minimum acceptable performance standards. The Branch Chief and Assistant Director are notified where employees are exceeding performance standards.

3.4 Quality System Training

All Program Managers and technical employees are encouraged to draw upon their educational background, experience, professional training, conferences, and on-the-job training to enhance their understanding and performance of quality assurance and related procedures. Records are kept of any internal or external quality assurance training. The Quality Assurance Manager and QA/QC Coordinators should participate in specific courses or other mechanisms to become more knowledgeable and proficient in quality assurance and the implementation of quality systems. External training courses (through US EPA or other entities) combined with broad understanding of quality systems are to be supported by EPD senior management through fiscal and temporal resources. Branch Chiefs are responsible for quality system training, but may delegate the training to the appropriate level of management within their Branch. A copy of the Division Quality Management Plan will be made available to all staff members through electronic means. Every five years (or more frequently as warranted), the Quality Assurance Manager will provide an overview of the Division's Quality Management Plan to those Program Managers that manage environmental data. QA/QC Coordinators will provide more detailed training to program staff regarding the areas covered by the Branch Quality Assurance Plans. The effectiveness of the Division's quality system training shall be assessed through audits. The Management Procedures Audit summarizes to the Assistant Director the need, if necessary, for a more intense quality system training program than currently administered in the Branches.

4.0 Procurement of Items and Services

4.1 Introduction

Ensuring the quality of purchased items and contracted services is the responsibility of individual Program Managers. The project manager is responsible for developing project specific quality system criteria for each type of project activity with respect to purchased items and/or contracted services. The Branch Chief or Program Manager must approve subcontracted quality system criteria included in the quality assurance project plan and contract for each project. Adherence to Quality Management Plan requirements for items and services will be evaluated in quality system audits.

4.2 Quality System Requirements for Items

Purchased items shall meet defined standards and specifications for quality. The technical staff shall set quality standards for the use of an item unless specific quality standards are specified in a regulatory document. Standards and specifications, if not defined, are developed in the planning process and will be included in quality assurance project plan.

As technical or administrative staff develops standards and specifications for items, various sources are employed to review the appropriateness of the specifications, including review of statewide and agency contracts for similar items and literature reviews. The Program Manager conducts an initial review for conformance for quality and performance, in conjunction with the State of Georgia's Procurement Manual (found at <http://doas.ga.gov/StateLocal/SPD/Docs_SPD_General/GeorgiaProcurementManual.pdf>). Once reviewed, an "eQuote" is developed and submitted for internal review to EPD's Administrative Management Program for financial and quality conformance. Depending on the amounts and types of items purchased, from two to four levels of approval are needed before a purchase requisition (the "eQuote") is submitted to the Georgia Department of Administrative Services' Team Georgia Marketplace. A full description of Team Georgia Marketplace and the e-Quote manuals can be found on the State Purchasing Division of the Georgia Department of Administrative Services' website (<http://doas.ga.gov/StateLocal/SPD/>). Approvals for all purchases have at least two management levels of review – the Program Manager and the Administrative Management Program Manager. Additional purchasing information is located on the Georgia Department of Natural Resources intranet site (<http://dnrnet.dnr.state.ga.us/fs/purchasing_info>).

Upon receipt, the quality of items will be monitored by various methods within the individual Branches and / or Program. In general, when purchased items have been received, either staff or the manager will inspect the item for adherence with the specifications required by the quality assurance project plan. As the item is placed into service, staff will monitor the performance of the item to assure that the item works as intended and within the specifications of purchase. Significant deviations in an item's performance will trigger management intervention and resolution with the item's vendor.

The Division Quality Assurance Manager shall monitor the effectiveness of the quality system in regards to purchased items through audits and summarizes the effectiveness to the Assistant Director in the Management Procedures Audit report.

4.3 Quality System Requirements for Services

Most service related activities are conducted by in-house services at EPD. When an outside contractor is required, the Program Manager ensures that sufficient quality standards and performance-based quality requirements are included in the contract. Standards and specifications, if not defined, are developed in the planning process and will be included in a quality assurance project plan or vendor contract. All contracts originating from EPD include standard terms and conditions for quality related issues; additional project related quality standards are added as required by the Branch Chief or project manager. Procurement of services follows the same processes under the Georgia Procurement Manual and Team Georgia Marketplace. Again, two to four levels of approval are required to ensure conformance with the procurement processes and quality specifications.

Inspections of contracted services are conducted during and after the work activity to ensure contract defined criteria are met. Payments for services are not made until all work is completed, inspected and approved by the project manager. A project manager is required to report on the performance of the contractual service provider and services received, before payment is made. The Administrative Support Program Manager reviews that report. Significant deviations of performance and services received are escalated to the Division Quality Assurance Manager.

The Division Quality Assurance Manager monitors the effectiveness of the quality system in regards to contracted services through audits and summarizes the effectiveness to the Assistant Director in the Management Procedures Audit report.

4.4 Contractor and Assistance Agreement Holders Quality Systems

EPD requires that contractors and assistance agreement holders have sufficient elements of an approved quality system in place for each work activity to ensure compliance with the project defined quality objectives. The contractor or assistance agreement holder must have a quality management plan in place prior to the awarding of a contract or agreement. As part of the planning process, project personnel review and evaluate the quality systems of the contractor or assistance agreement holder.

The Program Manager must approve the quality systems as suitable for the expected work activity. The Program Manager prepares a quality system compliance report for the Branch Chief. This report must document all aspects of the contractor's or assistance agreement holder's quality system and compliance with EPD's quality requirements. The Branch QA/QC coordinator may assist in the assessment of the contractor's or assistance agreement holder's quality system and in the development of a quality system compliance report.

Both internal (EPD project manager and QA/QC coordinator) and external (contractor or assistance agreement holder) assessment procedures will be utilized to assess work activity conformity with EPD's quality objectives. These assessments will be conducted independently and reported to the Program Manager through a formal reporting process. Deficiencies identified through either assessment will result in the initiation of a corrective action report that will require resolution of the identified deficiency prior to approval and acceptance of the work activity by EPD.

5.0 Documents and Records

5.1 Introduction

This policy applies regardless of medium to all documents and records generated or maintained by EPD, including, but not limited to, the Quality Management Plan, standard operating procedures, project plans, quality assurance project plans, and data quality objectives.

In general documents will be retained by the EPD Program that generated it. Documents are usually kept in a facility or incident file and selected data in an electronic database. Laboratory analytical testing results are forwarded to the EPD Program that requested the testing and keeps a copy of the results.

All records created or received by EPD must be maintained and made available for public review (with certain exceptions for confidential business information). Records are maintained either in original format or on microfilm or destroyed according to the approved Secretary of State's Records Retention Schedule for EPD. Note: EPD may also define / modify the agency specific retention schedule from time to time, with approval from the Secretary of State.

5.2 Documents

The following controlled documents are prepared and reviewed by Branch QA/QC Coordinators and are reviewed by the appropriate Branch Chief and Program Manager(s):

- EPD Quality Management Plan
- Branch Quality Management Plans

Quality controlled documents and records are prepared by the QA/QC Coordinator to conform with any technical and quality system requirements, and are reviewed by the appropriate Program Manager(s). The appropriate EPD Branch Chief approves the quality controlled documents in conjunction with the Division Quality Assurance Manager.

Other documents created by the Division are created by technical, administrative or managerial staff. Those documents are to accurately reflect the identity of the personnel involved in making observations, collecting field data, sampling, preparation, calibration or testing. Documentation of entries are to be signed or initialed by the staff responsible for its creation. Data created are to be recorded directly, promptly and legibly. Entries into records are not to be obliterated. The Program Manager is responsible for review of records.

5.3 Chain-of-Custody

Due to the importance of regulatory investigations, site investigations and routine monitoring projects, sample collection and receipt documentation must be detailed and complete. The EPD Laboratory uses a formal Chain-of-Custody (COC) procedure to generate a written record of sample receipt, transfer, and custody within the Laboratory.

Laboratory analysis request forms are provided by the various EPD Branches and Programs. EPD Laboratory sample custody forms are listed below:

- EPD Laboratory Chain-of-Custody
- EPD bottle custody seal (or a similar seal may be substituted)

Project Managers are responsible for ensuring that Chain-of-Custody procedures are followed as indicated in any quality assurance project plan. In general, the responsible staff person initiates the sample collection Chain-of-Custody by recording the date, time, location, and other descriptive information about the sample and its analysis. The samples are transported in the possession of the sample collector or is transferred to another responsible staff member until it reaches the EPD Laboratory. The EPD Laboratory accepts the sample and continues the Chain-of-Custody until the analyses are complete and reported.

Specific Chain-of-Custody procedures at the EPD Laboratory include:

- Samples are received at the laboratory by a sample custodian or a designated alternate. The sample custodian or a designated alternate ensures all information is correct and then signs and dates the COC. Most samples are received in the sample receipt area, however, samples are also received directly into the individual laboratory performing the analysis on the sample. In these cases, the same sample custody and log in procedures are in place to ensure sample integrity.

- All samples submitted to the Laboratory are accepted for analysis. Each set of samples and the individual samples are checked for recommended acceptance criteria. If sufficient sample exists then all requested analyses are performed. Discrepancies regarding sample receipt are noted and communicated to the project manager through E-mail and on the final analytical report. Sample analysis is performed, as requested by the project manager, regardless of compliance with recommended sample acceptance criteria.

- Complete and accurate sample documentation, which includes the sample identification, location, date and time of sample collection, name of sample collector, correct sample preservation, and special sample information is recorded in LIMS. Sample bottle labels are checked for correctness and completeness.

- Acceptable sample receipt temperature is 0 - 20°C for Protozoan samples. The receipt temperature is recorded on the COC or sample analysis request form. If a temperature blank is not received, the temperature of the ice water in contact with the samples is recorded. Regulatory requirements may not require samples for some analyses to be shipped and received on ice. In these cases, the receipt temperature is not recorded in LIMS. Sample receipt temperature is reported on the final analytical report.

- The presence of custody seals and whether the seals are intact is also recorded on the COC or analysis request sheet.

- The use of inappropriate sample containers and preservation is recorded only if the containers or preservatives are different from those recommended by the appropriate method reference. This information is commented on the final report. Samples are confirmed for preservation and preserved at the Laboratory if necessary. In some cases, the preservation is confirmed after initial sample analysis. Laboratory preservation is recorded on the sample documentation.

- Discrepancies noted from initial sample receipt and inspection are communicated to the project manager by mail or telephone if necessary. The customers response with instructions to proceed or cancel the analysis is maintained with the sample documentation at the Laboratory.

5.4 Record Retention

EPD follows the standard operating procedures found in the Georgia Secretary of State's Retention Schedules (see: < http://sos.georgia.gov/archives/pdf/state_spec_reports/Natural_Resources_Schedules.pdf>) for the retention, preservation and disposal of documents and records. Each Branch Chief is responsible for establishing any additional necessary procedures to ensure that all quality-related documents are maintained in accordance with EPD policy and State law.

Any additional procedures are to be coordinated and reviewed with the Division Quality Assurance Manager. Each procedure addresses the management, planning and development, procedures for revision and review, distribution, completeness and accessibility of the documents.

Records and documents are public property and must be maintained in accordance with State law. The Branch Chief shall ensure that the appropriate EPD personnel shall receive training in these procedures as a portion of their overall training plan. Each EPD manager is responsible for ensuring that all documents under their control are properly created, retained, maintained, secured and archived or destroyed according to the Program's SOP. In addition, EPA Directives 2100 and 2160 are followed.

5.5 Documentation System Assessment

Branch Chiefs will provide copies of any additional procedures for document control to the Quality Assurance Manager as developed. Each Branch's procedures are reviewed by the Division Quality Assurance Manager to verify that procedures are adequate and are being appropriately implemented. The effectiveness of the procedures will be assessed during Data Collection and Technology Review Audits conducted by the Quality Assurance Manager. The Quality Assurance Manager will report to the Assistant Director and the Branch Chief the individual Branch's procedures for controlling documents as required by the annual Management Procedures Audit report.

6.0 Computer Hardware and Software

6.1 Contracted Infrastructure Services

The Georgia Department of Natural Resources (DNR) is part of the Georgia Infrastructure Transformation (GAIT 2010) and the Georgia Enterprise Technology Services (GETS). Georgia state agencies are to have computer hardware and software supported through a contract to a third-party provider, IBM. Network services are to be provided under a contract through AT&T. Hardware and software are expected to be refreshed every three to five years.

The contract covers mainframes, servers, printing, service desk, end-user computing (desktops and laptops) and disaster recovery. IBM is partnering with two subcontractors: Dell is providing end-user computing services, and Xerox is providing printing services.

Expected services under the GETS contract include:

- Service desk consolidation
    - 21 separate service desks have been consolidated into a single enterprise service desk providing 24/7/365 coverage.
- Server consolidation
- Applications are being migrated to a consolidated server environment in stages.
- Data storage consolidation
    - Data is being migrated to a consolidated environment in accordance with the same timeline as server consolidation. The implementation of a standardized, consolidated storage environment will improve data availability, technical support and data recovery. Activities include:
        - Additional data gathering to obtain a detailed picture of current data storage in state agencies
        - Designing and building the consolidated data storage environment at the state's data center
        - Implementing best practices and procedures
        - Enhanced security and disaster recovery
        - Creating a multi-layered security environment from desktop to mainframe improves security. Processes and procedures are being standardized throughout the enterprise, and better monitoring and response are leading to higher service levels. IBM is developing, maintaining and testing disaster recovery plans in coordination with state agencies.
- Comprehensive asset management
    - The asset management system provides end-to-end lifecycle management for all technology assets, including PCs, laptops, servers, network equipment and peripherals. It tracks hardware location, software installs, repair history, license management and lease life.
- Standardized end-user computing
    - Improved service through the implementation of consistent hardware platforms, software and enterprise-wide service levels and management

tools. Desktops are being replaced every five years and laptops every three years. End-user computing also includes the management of software distribution, patches, antivirus software and software licenses. Data on laptops and tablet PCs is being encrypted.

- Standardized, consolidated e-mail
  - Consolidated e-mail and directory systems enable greater security and interoperability and make future enhancements easier to deploy.
- Standardized incident, problem and change management
  - Unified processes and procedures based on industry best practices improve services.
  - Management and reporting of enterprise-wide service levels
  - Standardized measurements and reporting tools enable us know whether service levels are being met.
- Service Management Manual
  - The manual provides a single reference for all processes across the state's IT enterprise.
- Service Catalog
  - The Service Catalog provides a single point for ordering services. It is accessible on the Georgia Enterprise Technology Services (GETS) Web portal.
- GETS Web portal
  - The GETS Web portal provides a single point for accessing information about the entire IT operating environment, including service levels, asset inventories, billing, change requests and service desk tickets. Agencies are able to order services through the Services Catalog on the portal.

6.2 Compliance With User Requirements

Through the Georgia Infrastructure Transformation (GAIT 2010) process, acquisition of hardware and software will meet minimum performance and compatibility standards through standard hardware and software offerings. Standard services for hardware and software are ordered through the GAIT 2010 "Service Catalog". As an integral part of these procurement procedures, requesting staff can consult the Georgia Technology Authority's Service Delivery Consultant to discuss in detail individual performance and data quality needs. For instances where outside organizations provide no-cost software, an internal consultation with the Georgia Department of Natural Resources' Information Technology Group may be warranted. The results of any consultation are to be documented to ensure specific user needs are to be met.

Should the purchase of specialized hardware or software be required that is outside the scope of the GAIT 2010 Service Catalog, an electronic Request For Solutions ("Solutions Request") is available for users to provide the specific information needed to satisfy user requirements. The Solution Request team will contact the user for more information and will invite the user to a meeting to discuss the unique request.

In-house software applications used throughout EPD are supported through the Georgia Department of Natural Resources' Information Technology Group. Any new database

application or modification of an existing database application requires consultation with end users to ensure specific user needs are to be met. A user needs requirement document is created to capture any new or modified user requirement.

6.3 Quality of Environmental Data

Software applications and their underlying databases of environmental data are to have procedures in place to ensure that errors or inconsistencies are eliminated or minimized during data acquisition. Each software application and database, many of which are uniquely designed to handle data specific to a particular environmental program, are to have built-in mechanisms to screen for valid data and appropriate data relationships. To augment any built-in data integrity mechanisms, Program Managers are to make available any procedures and provide any training to ensure that program staff are able to effectively evaluate the quality of data being acquired and entered into the application/database. Additionally, staff are to be able to spot and correct potential errors and inconsistencies within the constructs for assuring accuracy and timeliness of data entry. Staff have the initial responsibility for assuring data quality in collaboration with their Program Manager.

7.0 Planning and Implementing Quality Processes

7.1 Introduction

Planning and implementing environmental data operations must be done in a systematic way in order to ensure that data or information collected are of needed and expected quality for their desired use. Following such a process helps to ensure the ultimate success of any individual environmental data operation. Included in this chapter is guidance on processes that program managers must follow before and during data gathering or analysis.

It is recognized that in addition to planned and long-term routine environmental data operations, there are also instances where the immediate need for a data operation arises from an unplanned event, emergency situation, or some other cause that imposes a constraint on the amount of time available to meet the requirements of the formal systematic planning process and the development and approval of QAPPs and similar internal documents as described below. Staff shall use their best judgment in determining the flexibility needed from the requirements of the following sections in these instances, and document the decision in a memo to the file for that data operation.

The primary documents used as planning inputs to the overall system are: 1) Division-wide strategic plans; 2) budget documents; 3) the Performance Partnership Agreement (including a comprehensive set of work plans for EPD Programs) and Performance Partnership Grant with USEPA; 4) local, state, and federal rules and regulations; 5) technical standards used by the various programs; and 6) the various QAPPs already in place.

Program Managers and Project Managers (those individuals assigned to complete individual tasks) are key staff in the area of planning and implementing quality processes. Considering the goals of an individual project, the following steps are to be followed by program managers or their designees in planning any of the processes required by this QMP.

The overall planning goal is to produce written documentation describing how the data will be acquired, analyzed, evaluated, and assessed against its intended use and the quality performance criteria. The form of this document will be program-specific. In some cases, memos to staff will suffice. However, it may be necessary for the program manager to develop more specific quality assurance documents. One common document is the Quality Assurance Project Plan (QAPP), which is typically required with USEPA-funded activities. QAPPs will be prepared in accordance with this QMP and other relevant QAPP guidance documents including, the USEPA Requirements for Quality Assurance Project Plans, QA/R-5, March 2001, EPA/240/B-01/003, or later edition.

The Quality Assurance Manager and the QA/QC Coordinators are a resource to program managers tasked with developing QAPPs and related documents. A QAPP should be considered when:

a) A funding agency requires it.
b) There are serious public health and/or environmental impacts.
c) A matter is under litigation, enforcement or a court-ordered schedule, and therefore may be highly scrutinized.
d) A program is being implemented for the first time; or
e) The program has a research aspect.

EPD Programs that are required to develop QAPPs by USEPA or other funding agencies, but have not yet done so, will provide the Quality Assurance Manager with a development schedule and complete such QAPPs following this schedule. All draft QAPPs must be reviewed and approved by the Quality Assurance Manager or Branch Chief (via signature on the QAPP Approval Page) prior to submittal to USEPA for final review and approval. The Quality Assurance Manager, in cooperation with the relevant Program Managers, is responsible for tracking the development of any required QAPPs. The process the QA Manager uses for tracking the receipt, review, and approval of QAPPs

Regardless of the final form the planning document takes, (whether it be a required, formal project-specific QAPPs or a Branch-only Quality Assurance Plan) it will fulfill requirements described in Sections 7.3 through 7.8 of this QMP, and as such must be sent to the Quality Assurance Manager or QA/QC Coordinator for review and approval. Sampling and Analysis Plans only require the review and approval of the Program Manager.

The quality planning steps listed below apply to many work tasks, including the development of Quality Assurance Project Plans:

a. Identify (and involve) an individual project manager. Other parties must also be identified and involved as appropriate, such as the sponsoring organization and its responsible officials, EPD project personnel, and other stakeholders such as legislators or other government agencies, scientific experts, community activists, etc. The intent is to identify all customers for the data and all suppliers of the data. The Program Manager is responsible for this step.
b. Describe the project goal, objectives, and questions and issues to be addressed in writing and communicate them to the parties identified above. Consider the potential uses of the data. The project manager is responsible for this step; the program manager reviews and approves it.
c. Identify the project schedule, required resources (including budget), milestones, and any applicable requirements (e.g., regulatory and contractual requirements). The project manager prepares this for the program manager's approval.
d. Identify the type and quantity of data needed and how the data will be used to support the project's objectives, and communicate this to relevant parties. This is the program manager's responsibility, and is usually a collaborative process among parties identified above. The data must meet the needs of the intended audience. Identify the performance criteria for measuring data quality, including any statistical methods proposed, and ensure that the criteria are understood by relevant parties. This is the program manager's responsibility, but should be a collaborative process among parties identified above.

e. Identify the QA/QC activities necessary to assess the quality performance criteria (e.g., QC samples for both the field and laboratory, audits, technical assessments, performance evaluations, etc.) and ensure that they are understood by relevant parties. This is the project manager's responsibility, although he/she should consult with laboratory or other parties as needed.
f. Determine how, when, and where the data will be obtained (including existing data) and identify any constraints on data collection, and document these in writing. This is the project manager's responsibility. The use of existing data is strongly encouraged, provided its quality is known and is appropriate for the project; new data should be used to fill gaps in existing data or to determine if the situation described by the existing data has changed. When new data is to be generated, the sampling and analysis procedures must be documented. Design of a sampling and analysis program must explicitly include how it is anticipated that the program will meet the Data Quality Objectives.
g. Consider whether it is appropriate to evaluate and qualify data from non-EPD sources, especially data gathered or analyzed by contractors, volunteers or other organizations such as universities or other research organizations. The project and program managers share this responsibility and should document their decisions. Management must be involved as necessary to ensure proper relationships with the outside parties. This issue must receive special attention from the project and program managers to ensure that this class of data is usable and defensible. As noted in other sections of this QMP, training, procurement of services, record keeping, and assessment and corrective actions are all areas that must be specifically addressed. When volunteers are used, training and oversight of the volunteers should be a focus.

7.2 Implementation

The EPD Director and Assistant Director are ultimately responsible for assuring that all work the Division undertakes is done to appropriate standards. That responsibility is delegated to various program managers throughout EPD. The Quality Assurance Manager is ultimately responsible for ensuring that all staff understand the quality system. The Quality Assurance Manager, with the assistance of the QA/QC Coordinators, provide assistance to the program managers to implement the quality system and reviews and approves the various required documents.

In the absence of directions otherwise in a program or project-specific document, the following structure applies:

a. Program managers are responsible for ensuring that written procedures are prepared and that staff are adequately trained in their use.
b. Project managers are, in general, responsible for ensuring that the actual work is carried out properly, and for alerting their chain of command of problems as they arise. In that case, the program manager must assist the project manager to address the problem. All such corrective actions must be documented in the annual report the program manager makes to the Quality Assurance Manager. The program manager and the project manager are responsible for communicating

changes to relevant staff. The project manager ensures that obsolete procedures are removed.

c. Program managers are responsible for reviewing the quality system within their programs and reporting the results of that review to the Quality Assurance Manager or QA/QC Coordinator. Such a review of the quality system shall include an assessment of all key program documents, especially all EPA-approved, multi-year, project-specific QAPPs. Annual QAPP reviews are an EPA requirement. If the needed revisions/updates are considered minor and do not affect data quality, the summary document submitted as part of the Self-Audit process will suffice. If the revisions are major (i.e., they are substantive and will affect data quality), then the results must be summarized and the QAPP revised for re-review and re-approval via the Quality Assurance Manager and relevant USEPA Quality Assurance staff.
d. Program managers are responsible for ensuring that their project managers and other staff have the information and resources necessary to do their work in accordance with all regulations, policies and guidance that apply to technical issues and to QA/QC issues;
e. EPD staff are individually responsible for carrying out the tasks assigned to them in accordance with policy and their supervisor's instructions, which includes instructions described in this QMP related to data quality; and
f. In the case of volunteers or data gathered by others, the project manager is responsible for reviewing the data and flagging or removing data of questionable or unusable quality. All such instances must be annotated so that persons reviewing the data will understand what happened and what the data limitations were.

7.3 Data Quality Objectives

Before any sampling, monitoring, or testing is conducted, the program manager must determine, document, and communicate data quality objectives (DQOs) to the relevant program staff, participating organizations, and laboratory staff (see USEPA document G-4, Guidance on Data Quality Objectives, EPA/240/B-06/001, February 2006). All sampling, testing, and recording of environmental data is done for a purpose; data is not gathered for its own sake. The procedures used for the effort must be appropriate for the use of the data. The purpose of the sampling or testing must be recorded.

In order to determine DQOs, program managers must consider and document decisions regarding the following:

a. What decisions will be made using this data;
b. What is to be communicated by using this data;
c. Will a prospective decision remain the same regardless of what the data shows; and
d. If there is nothing to be communicated by this data, is it necessary to gather the particular data.

DQOs should be discussed with program staff, participating organizations, and laboratory staff so that methods and detection levels can be agreed upon prior to sampling. The laboratory should also be included in any discussion of time frame for sampling and numbers of samples so that laboratory capacity will be available to handle the influx of

samples from a large project. These steps are imperative to assure the reliability of the data.

As described in Section 7.1, however, it may be necessary to develop a QAPP, which will be prepared in accordance with this QMP and other relevant QAPP guidance documents including the USEPA Requirements for Quality Assurance Project Plans, QA/R-5, March 2001, EPA/240/B-01/003, or later edition.

7.4 Sampling

Sampling is the collection of material to be tested or examined. The object of any sample collection effort is to generate data that can be communicated and used to support decisions and actions. Each program manager is responsible for ensuring that sampling activities are defined, controlled to the extent required, verified, and documented. Written sampling procedures must be followed in all instances. Wherever feasible, sampling procedures written by others, such as Standard Methods for the Examination of Water and Wastewater, or various USEPA guidance documents, should be included or reference in the procedures. In those cases, care must be taken to ensure that the most up-to-date, approved edition is used. The written procedure must be a stand-alone document sufficient to allow staff to do the work to the required quality standard.

Where sampling procedures written by others are not available, the program manager must ensure that a program-specific procedure is produced and made available to staff. Existing procedures for similar testing should be used as models whenever possible. The program manager prepares, and has responsibility for, the procedure. The sampling procedure to be used must be reviewed and agreed upon before leaving for the sampling trip. This is necessary to avoid confusion in general, but especially to ensure that proper sampling containers and equipment are taken. When samples are to be returned to the laboratory, it is recommended to check with the laboratory's personnel before going on the sampling trip. When deciding what procedure to use for any sampling effort, the following considerations must be factored in:

a. If the data may be used to support an enforcement case, documentation and adherence to procedures becomes even more important.
b. Sampling personnel must be trained in the use of the equipment, and records of the training must be kept.
c. Quality Assurance/Quality Control steps necessary to meet the DQOs must be established.
d. If the location is being sampled for the first time, be certain to record the location and mark it in the field as necessary.
e. When samples are to be taken at the same location again, be certain that the location is marked and accessible. Accurate notes should be taken to allow others to find the location.
f. How the samples will be transported to the testing or examination location must be established.
g. If other agencies or parties will be taking split samples, appropriate arrangements must be made. EPD will give these other parties full cooperation.

h. If people living near the sampling location, or local authorities, are interested in the sampling effort, the program manager must make appropriate arrangements for communications with any affected parties and the public. The decision regarding such communications should be recorded, and a log maintained for all communications. All EPD personnel must be aware that they work for the people of Georgia and must be informative and polite.

When sampling is done by others, either by private parties (including volunteers) who are reporting results to EPD or by parties such as contractors working as EPD proxies, the same sampling procedure issues apply. It is the program manager's responsibility to ensure and verify that these other parties are using appropriate written sampling procedures. This may include review and approval of the other party's procedure.

Sampling procedures, together with any required Health and Safety Plan, and if applicable, MSDS sheets for chemicals employed, must include information on choice of sampling equipment, decontaminating or discarding the sampling equipment, personal protective clothing or equipment needed, containers and preservation needed for the sample, any requirements related to transportation to the testing location, and field documentation requirements.

As part of annual program assessments, program managers must review their sampling procedures, and the results of that review (with recommendations for improvements or other changes) must be forwarded to the Quality Assurance Manager. This review must include checking to be sure that the QA/QC measures in the procedure are sufficient to meet the established DQOs. Where procedures produced by others are used, a review must also be done, but it can be limited to ensuring that the most recent guidance is still being used.

7.5 Field Testing

Samples may be tested or examined in the field, that is, in close proximity to the location where the sample was taken. The decision as to whether field or fixed laboratory testing is appropriate is the responsibility of the program manager. Program managers should be aware of technological advances that allow for more high quality field testing than has been available in the past.

Where samples are examined or tested in the field, documentation must take place immediately upon testing, following established guidance for documentation. The field personnel must not rely on memory and record results later. Field testing equipment must be calibrated per the manufacturer's recommendations, and calibration records must be kept. If calibration is done in the field, staff should keep this information with the field notes and put a copy of these calibration records in the file.

When deciding what procedure to use for any field testing effort, the following considerations must be factored in:

a. It must be known what compounds are being tested for, in what medium, and what detection limit is needed to produce meaningful results.

b. An estimate must be made of other compounds or conditions present that could interfere with detecting the compounds being tested for.
c. A decision must be made about the need to split some samples so that confirmatory testing can be done in a laboratory.
d. The environment in which the testing will take place – outdoors or in a truck or trailer must be considered. There may be special weather-related requirements for any piece of equipment such as a need to avoid low temperature or high humidity conditions.
e. The personnel doing the testing must have the proper training to run the testing equipment in question. Training records must be kept.

When field testing is done by others, either by private parties (including volunteers) who are reporting results to EPD, or by parties such as contractors working as EPD proxies, the same procedure issues apply. The program manager must ensure that these non-EPD parties are using appropriate written procedures. This may include review and approval of the other party's own procedure. Reference to other standard procedures is encouraged. Field testing procedures must include information on the choice of equipment, calibration of the equipment and calibration records, other QA/QC needed to ensure that DQOs are met, decontamination requirements, personal protective clothing or equipment needed, containers and preservation needed, and any requirements related to transportation to the testing location.

The testing procedure to be used must be reviewed and agreed upon before leaving for the monitoring location. This is necessary to avoid confusion in general, but especially to ensure that proper containers and equipment are taken. It is recognized, however, that there may be unknown site conditions or circumstances, such as those associated with emergency response situations, which would preclude staff from being able to follow this strict guidance in all instances. In such situations, best professional judgment and field staff experience would take precedence. After the incident, written documentation of any testing procedures conducted in the field, along with any relevant extenuating circumstances, must be provided.

The program manager must review field testing procedures generated within EPD periodically, and send the results of that review, with recommendations for improvements or other changes, to the Quality Assurance Manager. This review must include checking to be sure that the QA/QC measures in the procedure are sufficient to meet the established DQOs. Where procedures produced by others are used, a review must also be done, but it can be limited to ensuring that the most recent guidance is still being used.

7.6 Laboratory Testing

In many or most cases, samples will be tested or examined in a laboratory remote from the sampling location. As noted above, the decision as to whether field or fixed laboratory testing is appropriate is the responsibility of the program manager. Program managers should be aware of technological advances that allow for more high quality field testing than has been available in the past. This section applies primarily to analysis conducted by the EPD Laboratory.

Whenever feasible, sampling procedures written by others, such as Standard Methods for the Examination of Water and Wastewater or various USEPA guidance documents should be used. In those cases, care must be taken to ensure that the most up-to-date, approved edition is used. Where these procedures are used, all requirements in them must be followed, including those for data validation. Such QA/QC methods as split, blank, and spiked samples, as prescribed in these procedures, are key to ensuring reliable results, especially when testing at very low concentrations that are often significant.

Where testing procedures written by others are not available, the program manager must ensure that a program-specific procedure, which meets the program's data quality needs, is produced and made available to staff. Existing procedures for similar testing should be used as models whenever possible. The program manager prepares, and has responsibility for, the procedure.

Because laboratory testing has been standardized to a great extent, EPD program managers will often have fewer choices to make than in sampling or field testing efforts. When in doubt, program managers should consult with the Laboratory Director, Laboratory Managers, or Laboratory QA/QC Coordinator.

When deciding what procedure to use for any testing effort, the following factors must be considered:

a. It must be known what compounds are being tested for in what medium, and what detection limit is needed to produce meaningful results.
b. An estimate must be made of other compounds or conditions present that could interfere with detecting the compounds being tested for.
c. Staff must have the training needed to run the testing equipment in question. Training records must be kept.

When testing is done by others, either by private parties who are reporting results to EPD or by parties such as contractors working as EPD proxies, the same procedure issues apply. It is the program manager's responsibility to ensure that these other parties are using appropriate written procedures. This may include review and approval of the other party's own procedure. Reference should be made to other standard procedures being used.

This section of the QMP also applies to other activities done in the office that cannot be described properly as laboratory testing – for example, examination of geological samples. In cases where an item or sample is examined, the observations should be recorded immediately. The purpose of the examination should be included in the record, along with standard items such as date, time, and name of staff person doing the examination. Basically, the same principals apply as for testing, but simplified to meet the situation.

The program manager must review testing procedures generated within EPD periodically, and the results of that review, with recommendations for improvements or other changes, must be sent to the Quality Assurance Manager. This review must include checking to be

sure that the QA/QC measures in the procedure are sufficient to meet the established DQOs. Where procedures produced by others are used, a review must also be done, but it can be limited to ensuring that the most recent guidance is still being used.

7.7 Environmental Conditions

Some EPD programs do not deal with environmental data in the sense of laboratory test results, of parts-per-million of a particular contaminant. For example, the Watershed Protection Branch staff gather information about environmental conditions -- they describe conditions at a given location at a point in time: is a location a wetland; has it been filled or dredged; how do conditions now compare to earlier conditions; and who and what is present. Other programs that conduct sampling in the more typical sense will also gather this environmental condition data as an adjunct.

This information is very important to the Division and can be especially important for enforcement purposes. As with field sampling and testing, the purpose of the site visit or inspection must be understood in advance. Supervisors are responsible for ensuring that the field personnel, when taking measurements, know how to use the measuring tool in question. This can be quite simple in the case of a measuring tape, or equipment-specific training may be needed. If the latter is true, records of the training must be kept. Manufacturer's recommendations regarding use of the equipment must be followed. For any field visit to inspect a site or to take samples or conduct field testing, the visit must be recorded in a field book or on a form specific to the program. Recommendations regarding field documentation include the following:

a. The date, time, weather conditions (temperature can be estimated), and the identity of persons present must be recorded;
b. The purpose of the visit must be recorded. This note-taking must be completed before leaving the site area. Notes added after leaving the site area should be marked as such;
c. Nothing is to be erased in a field book. When mistakes are made, the mistaken information is to be struck through with a single line so that it can still be read. The change is to be dated and initialed. Also, all unused lines in the field book should be struck through and initialed;
d. Other events or conditions should be noted. Personnel should be liberal in applying this principle;
e. Photographs and video recordings should be marked identifying the date the picture was taken, the site or case, and the name of the person who took the pictures. For video recordings, the person taking the pictures should start the shot by introducing him/herself and the location being shot;
f. As noted above, field notes or other field documentation must be considered in the public record. When requested, copies of the field documentation must be provided;
g. A professional standard must be kept in note taking. Snide, angry or sarcastic notes should never be recorded. Comments on any person's character must be avoided. A strictly factual style should be followed. If necessary, record "He/She/I became agitated..." Any page of any field book may have to be defended in court. The appearance of personal animus can ruin an otherwise good enforcement case;

h. Handwritten notes taken in the field are not expected to show the best penmanship. However, they should be legible to persons other than the note-taker. If legibility may be an issue, a typed transcript should be prepared and placed in the relevant site/case file. Typed transcripts should show the date of the field visit, the date of the transcription and the name of the person who did the typing;
i. Personnel who are in the field often should keep their field book with them whenever they are on duty and out of the office. Field personnel who "just happened to be passing by" obtain important information. In this case, such observations should be recorded, and reported to authorities as necessary, but personnel should not attempt to make a full inspection without notifying a EPD office and having the proper training and equipment to address the situation at hand (e.g., a septic system inspector who happens upon someone dumping hazardous waste should probably observe from a distance and report the situation to the office); and
j. Field books remain in the possession of staff. Copies of the field book pages are placed in site/case files as needed. Program-specific field forms are placed in the site/case file.

7.8 Reporting Results

When reporting the results of a measurement, test, or environmental condition, the object of the report is to clearly communicate the result to a specific audience. The following should be considered when reporting results:

a. Information should be included so that the person receiving the report will know that the data is of appropriate quality. QA/QC information must not obscure the data being reported;
b. Data must not be obscured by technical jargon, therefore when preparing a report the audience must be considered. For reports to the public, greater clarity is needed, and including detailed QA/QC information may not be necessary. When reporting to technical staff, full QA/QC information should be included;
c. Reports must include the name of the sampler/tester and of the reviewer. Dates and sampling/test methods must be included or referenced. Raw data should be included as necessary;
d. To allow for clear communication, tables and graphs are encouraged. Where past results are part of that summary table or graph, the report should include enough information to allow interested people to find that past data. Including the date of the past sampling/testing, the location and parameter being sampled/tested, and the person/unit that did the testing will probably be sufficient to meet this goal;
e. Sampling and test results must be reported to the designated program person. For instance, the EPD laboratory will report to the person or program doing the sampling, unless specifically instructed otherwise. The program manager is responsible for instructing staff to forward results to the proper parties;
f. Data should be shared with USEPA and other government agencies freely. All EPD staff must be guided by the knowledge that, in general, all EPD data is public information. Division staff should be open, and in fact pro-active, in sharing our information. Again, this has to be done in a way that is communicative to the audience receiving the information while retaining technical rigor.

8.0 Quality Improvement

8.1 Introduction

Any effective quality system must have a mechanism for continual improvement. The quality system at EPD is modified as required to improve the overall quality of data collection, management and decision-making processes.

The Quality Assurance Manager and QA/QC Coordinators will develop, approve, and document quality system review procedures designed to determine how effectively the Division's programs and activities are achieving environmental goals and quality objectives. Such review procedures are based on quality objectives as documented in this QMP, QAPPs, technical or professional standards, or other requirements set forth prior to work being performed. The Quality Management System review includes annual program reviews/self-audits carried out in combination with a smaller set of formal internal audits conducted by the Quality Assurance Manager or other qualified staff. The results of the self-audits feed the annual quality assurance system report. In general, these assessments would take a number of forms within the Division, including:

- Internal program or project reviews;
- Quality Management System reviews (based on program reviews and audits).

8.2 Internal Reviews

Each program within EPD that is involved in the characterization of environmental processes and conditions, environmental monitoring, environmental modeling, or laboratory operations on environmental samples must conduct an annual internal reviews/self-audit to verify that operations continue to comply with the requirements of the EPD-QMP, any required QAPPs or similar quality documents, technical or professional standards, or other requirements set prior to work being performed. Internal reviews may be undertaken at the data, project, or the program level as appropriate. These annual program reviews, the results of which will be used as major input to the annual QMP system reviews should take place at least once per year.

It is the responsibility of the program manager to plan for and organize internal reviews. For consistency, the review will follow guidance in this QMP. The program manager will record the scope, procedures and results of the review in memo form and send that memo to the Division Quality Assurance Manager in a timely fashion. This memo will include a listing of the items reviewed, deficiencies or non-conformances (and areas for improvement) found, reasons for the deficiency or non-conformance, and either a schedule for implementing corrective action, or documentation of the corrective actions taken. The program manager shall ensure that these corrective actions are completed within the agreed time frame. An electronic or hardcopy of the memo should also be kept on file with the originating program.

The Division Quality Assurance Manager and QA/QC Coordinators are available to assist program managers with assessments and with identifying corrective actions.

Through the system assessments, the Division Quality Assurance Manager evaluates quality system requirements and recommends improvements to the Assistant Director annually at a minimum. Revisions in system requirements are also made throughout the period if regular and systematic deficiencies are resulting in less than desired improvements in data quality. Additionally, the Branch Chief can bring recommendations directly to the attention of the Assistant Director and Division Quality Assurance Manager at any time.

8.3 Quality System Reviews

The Division's Quality Assurance Manager and QA/QC Coordinators will coordinate an annual review of the EPD Quality Management System to evaluate its continuing suitability and effectiveness, and to introduce any necessary changes or improvements at the system and program operational levels. This review will be comprised of the results of the internal program reviews and, as needed, formal audits conducted by the Quality Assurance Manager and other qualified staff.

Based upon the results of program reviews and any formal audits conducted, the Quality Assurance Manager will prepare a report on the quality assurance system for the Assistant Director and Branch Chiefs covering the activities of the previous year.

The Division Quality Assurance Manager will provide a briefing to the Assistant Director and Branch Chiefs and identify any areas requiring improvement. The Director will have final review and approval authority for the report. The review shall take account of reports from managerial and supervisory personnel, the outcome of recent internal reviews, assessments by external bodies, any change in the volume and type of work undertaken, feedback from the public, corrective actions, and other relevant factors.

8.4 Non-Conformities

Significant deficiencies and non-conformances to QAPPs or Division requirements observed outside of the internal review or formal audit processes are to be reported by staff to the project or program manager, as appropriate. These managers shall ensure that the deficiency or non-conformance is recorded, and shall forward written communications to the appropriate program managerial and project/program-level quality assurance staff.

8.5 Corrective Action Program

A corrective action program to ensure conditions adverse to quality are identified promptly and corrected promptly is conducted through memoranda to the Division Quality Assurance Manager. Any EPD technical staff member can initiate a corrective action memorandum to the Quality Assurance Manager and does not require routing through a Branch Chief. Routing through the Branch Chief is recommended for some corrective actions. As adverse conditions are identified, a corrective action memorandum is initiated and forwarded to the Branch Chief and Program Manager. A log is maintained to document corrective actions and resolutions. The corrective action plan memorandum should identify the adverse condition, present an evaluation of the condition and recommend a resolution. A summary of corrective actions is to be reported to the Assistant Director.

Non-conformances and corrective actions may be identified through program reviews or formal audits. At the minimum, programs must document procedures regarding:

a) The individual(s) responsible for assessing each quality assurance/control procedure;
b) How staff should treat data or reports affected by unacceptable quality control;
c) Within a program, who has authority to suspend or stop work upon detection and identification of an immediate adverse condition affecting quality or health and safety;
d) How corrective actions are to be documented; and
e) Procedures for program review and implementation of corrective action documents.

When deficiencies or non-conformances have been identified, program managers determine and document the following:

a) The nature and scope of the problem;
b) Where possible, the root cause(s) of the problem;
c) The programmatic impact;
d) Required corrective action(s);
e) The individual(s) responsible for initiating and/or recommending corrective actions;
f) Action(s) needed to prevent recurrence;
g) The time frame for corrective actions to be implemented/completed; and
h) The method of assessing and verifying the effectiveness of the corrective action.

The corrective actions should be taken as quickly as possible, but all corrective actions shall be recorded. The program manager shall ensure that these actions are completed within the agreed time frame.

Section 9.0 – Glossary of Terms

Primary Terms

- Data Quality Objectives - Qualitative and quantitative statements that require predefined acceptable levels of measurement or decision error.
- Document - Any written, recorded information that is subject to change over time. Procedures, plans, policies, and records are documents. Documents may be controlled.
- Environmental Conditions - The description of a physical medium (e.g., air, water, soil, sediment) or biological system expressed in terms of its physical, chemical, radiological, or biological characteristics.
- Environmental Data - Any measurements or information that describe environmental processes, location, or conditions; ecological or health effects and consequences; or the performance of environmental technology.
- Environmental Data Operations - Work performed to obtain, use, or report information pertaining to environmental processes and conditions.
- Environmental Processes - Manufactured or natural processes that produce discharges to or that impact the ambient environment.
- Environmental Programs - A term pertaining to any work or activities involving the environment, including: characterization of environmental processes and conditions; environmental monitoring; environmental research and development; the design, construction, and operation of environmental technologies; and laboratory operations on environmental samples.
- Environmental Technology - Pollution control devices and systems, waste treatment processes and storage facilities including site remediation technologies used to remove contaminants from the environment or prevent contaminants from entering the environment.
- Program - A functional unit of EPD conducting a defined set of activities and deliverables or otherwise a core set of related functions.
- Program Manager - The person responsible for conducting a specific EPD program; this program management function is vested in people at different administrative levels within EPD.
- Project Manager - The term is used to describe staff that have direct knowledge and/or responsibility at the project or site-specific level.
- Quality Assurance (QA) - An integrated system of management activities involving planning, implementation, documentation, assessment, reporting, and quality improvement to ensure that a process, item, or service is of the type and quality needed and expected by the client.
- Quality Assurance Manager - The person assigned to manage QA system.
- Quality Assurance Plan (QAP) - A critical planning document for an ongoing environmental program, describing how data collection activities are planned, implemented and assessed.
- Quality Assurance Project Plan (QAPP) - A critical planning document for a time-limited project or task, describing how data collection activities are planned, implemented and assessed.

- Quality Control (QC) - The overall system of technical activities that measures the attributes and performance of a process, item, or service against defined standards to verify that they meet the stated requirements established by the customer; operational techniques and activities that are used to fulfill requirements for quality.
- Quality Management - That aspect of the overall management system of the organization that determines and implements the quality policy. Quality management includes strategic planning, allocation of resources, and other systematic activities (e.g., planning, implementation, and assessment) pertaining to the quality system.
- Quality Management Plan (QMP) - A formal document or manual, usually prepared once for an organization, that describes the quality system in terms of the organizational structure, functional responsibilities of management and staff, lines of authority, and required interfaces for those planning, implementing, and assessing all activities conducted.
- Quality System - An integrated system of procedures that include planning, implementation and assessment to ensure environmental data are of known and documented quality and that environmental technology produces the desired result.
- Records - A completed document that provides objective evidence of an item or process. Records may include photographs, drawings, magnetic tape, or other data recording media.
- Sampling and Analysis Plan (SAP) - A planning document used in conjunction with a QAPP, which describes the quality assurance procedures for a specific project/task.
- Standard Operating Procedures (SOPs) - A written document that details the method for an operation, analysis, or action with thoroughly prescribed techniques and steps, and that is officially approved as the method of performing certain routine or repetitive tasks.

QMP Checklist Element	EPD-QMP Section
Validation	
2.4 Provides a list of the environmental programs that develop Quality Management Plans in support of the Quality System	1.8
2.5 Describes the process for reviewing and approving internal Quality Management Plans within the organization	8.3
2.6 Describes the process for implementing QA/QC activities within the organization	2.3
2.7 Describes the roles and responsibilities of contractors or consultants in implementing the organization's quality system	2.4, 4.4
(3) Personnel Qualifications and Training	
3.1 Provides a policy statement regarding QA and technical training for staff and management	1.4
3.2 Describes the process for assuring that personnel are qualified to perform the environmental data collection activities – identifies positions that require professional certifications, accreditation or other formal qualifications	3.1, 3.2
3.3 Describes the procedures for determining QA-related training needs; discusses how QA training is obtained; and describes how the effectiveness of the QA training obtained is measured	3.2, 3.3, 3.4
3.4 Identifies the roles and responsibilities of management and authorities for obtaining QA training within the organization	3.2, 3.4
(4) Procurement of Items and Services	
4.1 Describes the roles and responsibilities of management and staff for reviewing and approving procurement documents to ensure that they are accurate and complete	4.1, 4.2, 4.3, 4.4
4.2 Discusses the process for ensuring that procurement documents clearly describe the items and services needed; include the associated technical and quality requirements, identifies the quality system elements for which the supplier is responsible for adhering to; and discusses how the supplier's conformance to the customer's requirements are verified	4.2, 4.3
4.3 Describes the process for specifying QA and QC requirements in purchase orders, procurement documents, acquisitions and assistance agreements	4.2
4.4 Identifies the individual(s) who are responsible for overseeing this process	4.1, 4.2, 4.3, 4.4
4.5 Describes the procedures for incorporating QA and QC requirements into contractor work assignments, technical directives, etc.	4.3, 4.4
(5) Documents and Records	
5.1 Describe the processes, including the roles and responsibilities, and authorities of management and staff for: identifying quality related documents and records (including hardcopy and electronic formats) requiring control	5.1, 5.2
5.2 Identifies the individual(s) who are responsible for preparing and reviewing documents for conformance to technical and quality system requirements	5.2
5.3 Discusses the process for approving, issuing, using, authenticating, and revising documents and records	5.2
5.4 Identifies the individual responsible for ensuring that records and documents accurately reflect completed work	5.2, 5.3
5.5 Describes the policies and procedures for maintaining documents and records including transmittal, distribution, retention (specifies retention time for documents and records), access, preservation	5.2, 5.3, 5.4

Section 10.0 – Crosswalk with QMP Review Checklist

QMP Checklist Element	EPD-QMP Section
(1) Management and Organization	
1.1 Provides Title Page, Approval Page, Table of Contents, References- Approval Page includes signatures of senior management and the Quality Assurance Manager/Officer	Approvals and Concurrence
1.2 Summarizes the importance of QA and QC activities to the organization	Introduction, 1.2
1.3 Describes the general goals and objectives of the quality system	1.3
1.4 Summarizes the policy for resource allocation for the quality system	1.4
1.5 Contains a reasonable organizational structure with respect to roles and responsibilities described in narrative	1.5
1.6 QA Manager is shown in the organizational chart	1.7
1.7 Demonstrates direct access from the QA Manager to senior organization manager – indicates how the organization will ensure that QA personnel will have access to the appropriate levels of management in order to plan, assess and improve the organization's quality system	1.5, 1.7
1.8 Describes QA Manager's independence and authority with respect to decisions on data quality	1.5
1.9 QA policy statement which demonstrates importance of environmental data in organizational decision-making	1.2
1.10 Adequately describe the scope of the organization's environmental data collection programs which require quality management	1.8
1.11 Discusses process for oversight of contractor activities (if data collection/analysis is contracted outside the agency)	2.4, 4.4
1.12 Provides a discussion of the technical activities or programs that are supported by the quality system	1.8
1.13 Identifies the specific programs or activities that require quality management controls	1.8
1.14 Identifies where oversight of delegated, contracted or other extramural programs is needed to assure data quality	2.4, 4.4
1.15 Where and how internal coordination of QA and QC activities among the group's organizational units needs to occur	1.6
1.16 Discusses how management will assure that applicable elements of the quality system are understood and implemented in all environmental programs	1.6
1.17 Discusses the organization's process for resolving disputes regarding quality system requirements, QA and QC procedures, assessments, or corrective actions,	1.5, 1.6
(2) Quality System and Description	
2.1 Describes the main components of the quality system, including quality system documentation, planning, annual reviews, management assessments, training, systematic project planning, project-specific documentation, project and data assessments	2.1
2.2 Discusses staff and management roles and responsibilities for quality assurance in environmental programs and for QA/QC in data collection	1.5, 2.1
2.3 Provides a list of tools for implementing each component of the quality system. Tools include Quality Management Plan, Quality System Audits, Training Plans (for technical and quality assurance training), Quality Assurance Project Plan, Data Verification and	2.3, 2.5

QMP Checklist Element	EPD-QMP Section
(including protection from damage, loss and deterioration), traceability, retrieval, removal of obsolete documentation, and disposition.	
5.6 Identifies the individual and policies for ensuring that documents and records comply with all applicable regulatory, statutory, and EPA requirements	5.4
5.7 Describes the procedures and identifies the individuals responsible for establishing and implementing appropriate chain-of-custody and confidentiality procedures for evidentiary records	5.3
(6) Computer Hardware and Software	
6.1 Describe the processes, including the roles, responsibilities and authorities of management and staff for developing, installing, testing, using, maintaining, controlling, and documenting computer hardware and software used in environmental programs to ensure compliance with technical and quality system requirements	6.1, 6.2
6.2 Describe the procedures for assessing and documenting the impact of changes to user requirements	6.2
6.3 Discusses the process for evaluating purchase hardware and software to ensure it meets user requirements and complies with applicable contractual requirements and standards	6.1
6.4 Describes the process for ensuring that data and information produced from or collected by, computers meet applicable information resource management requirements and standards	6.3
6.5 Describes the process for identifying and documenting the quality of environmental data in data bases and information systems – identifies the individual(s) responsible for certifying that data bases and information systems contain accurate information	6.3
(7) Planning	
7.1 Describes the process for planning environmental data collection operations	7.1
7.2 Identifies the roles and responsibilities of management and staff in the planning – discusses the involvement of project managers, sponsoring organization, project personnel, scientific experts, stakeholders and end data users	7.1
7.3 Identifies how technical expertise in sampling, statistics, analytical services and QA/QC is provided	7.1, 7.2
7.4 Describes the use of a systematic planning process or data quality objectives process in planning environmental data collection operations	7.1, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8
7.5 Discussed the procedures for measuring the effectiveness of the planning process by management	7.1, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8
7.6 Describes the process for determining the type, quantity and quality of data to ensure that this information meets project objectives	7.1, 7.3, 7.4, 7.5, 7.6, 7.7, 7.8
7.7 Describes the process for preparing, reviewing and approving QA project plans for environmental data collection operations performed by the organization	7.1, 7.2
7.8 Describes the process for preparing, reviewing and approving QA project plans for environmental data collection operations performed by contractors/consultants or assistance agreement holders	7.1, 7.2
(8) Implementation of Work Processes	
8.1 Describes the process used for implementing QA Project Plans or other planning documentation for environmental data collection operations	7.1, 7.2
8.2 Discusses the system used to assure that such implementation is accomplished properly	7.1, 7.2
8.3 Describes how revisions to QA Project Plans and/or other planning	7.1, 7.2

QMP Checklist Element	EPD-QMP Section
documents are made, maintained and communicated to all parties involved (project personnel, stakeholders and end data users, etc.)	
(9) Assessment and Response	
9.1 Discusses how the adequacy of the quality system is assessed (audits, peer reviews, surveillance, readiness reviews, performance evaluations, etc.) annually and identifies the individual responsible for performing this assessment	8.1, 8.2, 8.3
9.2 Describes the authority, competence, experience and training necessary to ensure that personnel conducting assessments or audits are technically knowledgeable, have no real or perceived conflict of interest, and have no direct involvement or responsibility for the work being assessed	8.3
9.3 Discusses the process for planning, conducting and reporting the results of assessment activities	2.5, 8.3
9.4 Discusses management's responsibility for reviewing and responding to assessment or audit findings	2.5, 8.5
9.5 Discusses how and when corrective actions will be implemented in response to audit/assessment findings	8.5
9.6 Identifies the individual(s) who are responsible for addressing any disputes arising from audits/assessments	1.5, 1.6
(10) Quality Improvement	
10.1 Identifies who is responsible for identifying, planning, implementing and evaluating the effectiveness of quality improvement activities	8.1, 8.2
10.2 Describes the process for ensuring the continued improvement of the quality system	8.1, 8.2
10.3 Describes the process for ensuring that conditions adverse to quality are prevented, identified promptly and corrected as soon as possible	8.2, 8.3, 8.4, 8.5
10.4 Discusses how corrective actions are documented, tracked completed and verified	8.3, 8.4, 8.5

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